

6.—Two new genera and five new species of Percophidid fishes (Pisces: Percophididae) from Western Australia

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Abstract

Two new genera, *Branchiopsaron*, *Liopsaron*, and three new species belonging to the genera *Bembrops* and *Chrionema* are described from Western Australia.

Introduction

A collection of fishes trawled in 15 to 202 fathoms off the north Western Australian coast has been donated to the Western Australian Museum by Captain K. Ozawa of the Japanese Research Vessel *Umitaka Maru*. The collection contains many fishes unrecorded from Western Australia.

The family Percophididae is predominantly Indo-Pacific in distribution; *Percophis* is only found in the tropical Atlantic, and the genera *Bembrops* and *Chrionemastax* have representatives in the Atlantic Ocean as well as the Indo-Pacific.

Only the genus *Acanthaphritis*, from the Arafura Sea, has been recorded from the eastern Indian Ocean. This family has been previously recorded in eastern Australian waters by one species, *Enigmapercis reducta* Whitley, from New South Wales.

A brief key to the percophidid genera is given in Schultz (1960: 273-277) and a key to some of the genera is provided by Okamura and Kishida (1963: 47-48).

Key to the genera of Percophididae

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|---|----|-----------------------------------|---|
| 1.A Opercle with two conspicuous spines; subopercle with single spine; scales on body ctenoid, the anterior-most scales of the lateral line armed with a keel; branched caudal rays 11 | 2 | | |
| B Opercle with a single spine, a ridge, or unarmed; subopercle without a spine; scales on body cycloid or weakly ctenoid, the anterior-most lateral line scales without a keel; branched caudal rays 11 or less | 4 | | |
| C Opercle with a single spine; subopercle with a strong spine; no scales on body, lateral line absent; branched caudal rays 8 | | <i>Liopsaron</i> new genus | |
| 2.A A dermal tentacle or flap on the posterior end of the maxillary | | <i>Bembrops</i> Steindachner 1876 | |
| B No dermal tentacle or flap on maxillary | 3 | | |
| 3.A Space between mandibular rami naked | | <i>Chrionema</i> Gilbert 1905 | |
| B Space between mandibular rami scaled | | | <i>Chrionemastax</i> Ginsburg 1955 |
| 4.A Lower jaw projecting, noticeably longer than upper jaw; dorsal spines 8 or 9; branched caudal rays 11 | | | <i>Percophis</i> Quoy and Gaimard 1824 |
| B Lower jaws not projecting; dorsal spines 6 or less; branched caudal rays 7 or 8 | 5 | | |
| 5.A Outer edge of nasal openings ringed with inwardly projecting cirri | | | <i>Cirrinasus</i> Schultz 1960 |
| B Outer edge of nasal openings without cirri | 6 | | |
| 6.A Dorsal spines 2 or 3; dorsal rays 15-18 | 7 | | |
| B Dorsal spines 4 to 6; dorsal rays 20-26 | 8 | | |
| 7.A Branchiostegal rays 7 | | | <i>Enigmapercis</i> Whitley 1936 |
| B Branchiostegal rays 5 | | | <i>Matsubaraea</i> Takai 1953 |
| 8.A Subopercle with a posterior flap that extends on to the lower part of the pectoral base; scales on body weakly ctenoid; teeth on vomer | 9 | | |
| B Subopercle without a posterior flap; scales on body cycloid; no teeth on vomer | 11 | | |
| 9.A Ceratohyal with an inwardly directed process; dorsal fin rays 24-26; anal rays 29-31; branchiostegal rays 7 | | | <i>Branchiopsaron</i> new genus |
| B Ceratohyal without an inwardly directed process; dorsal fin rays 20-23; anal rays 24-26; branchiostegal rays 6 | 10 | | |
| 10.A Cleft of mouth oblique; opercle unarmed; no barbel on upper jaw | | | <i>Acanthaphritis</i> Günther 1880 |
| B Cleft of mouth almost horizontal; opercle with a ridge along the dorsal margin; a barbel at the symphysis of the upper jaw | | | <i>Spinapsaron</i> Okamura and Kishida 1963 |

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11.A Inner edge of preopercle with a row of cirri that interdigitate with gill rakers on the first gill arch; anal rays 27; fin rays of first dorsal and anal elongate ... *Pteropsaron* Jordan and Snyder 1902

B Inner edge of preopercle without cirri; anal rays 22; fin rays not elongate ... *Osopsaron* Jordan and Starks 1904

Okamura and Kishida (1963: 46-47) have made an attempt at grouping some genera. Following a survey of the literature I have included all the genera of *Percophidae* in the grouping below. Many genera are monotypic and a revision of the family, although perhaps still premature, may reduce the number of genera considered below.

Group 1 contains *Bembrops*, *Chironema* and *Chromystax*. The opercle has two spines and the subopercle one spine in this closely related group.

Group 2 contains *Acanthaphritis*, *Branchiopsaron* and *Spinapsaron*, these genera possessing preorbital spines, a subopercular flap (also found in *Matsubaraca*) and 4-5 dorsal spines.

Group 3 contains *Pteropsaron* and *Osopsaron*; these genera lack the preorbital spines and subopercular flap.

Group 4 contains *Matsubaraea* and *Enigmapercis*. These two genera seem to be morphologically similar in having teeth on the palatines, 2-3 dorsal spines, 18-19 dorsal rays, reduced gill rakers, almost cycloid body scales and no preorbital spines. The branchiostegal ray count differs, and Whitley (1944 p. 254, text fig.) shows the opercles as approaching or overlapping the pectoral fin base, whereas in *Matsubaraea* there is a distinct subopercular flap. This group is similar to groups 2 and 3.

The three remaining genera of the family, *Cirrinus*, *Percophis* and *Liopsaron* are quite distinct from the genera listed above. *Cirrinus* approaches group 4 in fin formula; *Percophis* is very different in having a large number of dorsal and anal fin elements (D.VIII-IX, 31; A.i 38-40); *Liopsaron* is most aberrant in lacking scales, and has a single opercular and subopercular spine. In general morphology this latter genus is rather similar to groups 2, 3 and 4 but shows relationships with group 1 in having a subopercular spine.

Branchiopsaron McKay, new genus

Type species: *Branchiopsaron ozawai* McKay, new species.

Body slender and subcylindrical, covered with large thin scales with weakly etenoid ragged edge. Opercles and cheeks with cycloid scales; snout naked. Lateral line along mediolateral axis of body, scales differentiated. Eyes large, mostly dorsal in position and separated by very narrow interorbital ridge. Snout depressed, with well developed preorbital spines not projecting

beyond outer margin of upper jaw. Upper jaw slightly longer than lower; mouth slightly oblique; maxillary expanded posteriorly, without flap. Upper and lower jaws with about three rows of small depressable teeth; vomer with two well-separated, raised mounds bearing strong teeth; palatines without teeth. Tongue without teeth, narrow posteriorly between vomerine patches, but dilated anteriorly into spoon-shaped process, lying well anterior to vomer. Ceratohyal with terminal well-developed inwardly-projecting process. Opercle with single spine; subopercle with membranous posterior flap covering lower half of pectoral fin base; posterior-dorsal edge smooth. Gill membranes free from isthmus. Two dorsal fins, first fin low with five slender spines; second fin with twenty four to twenty six rays. Anal fin rays twenty nine to thirty one. Branchiostegal rays seven.

This new genus is similar to the genera *Spinapsaron* Okamura and Kishida, *Pteropsaron* Jordan and Snyder, *Osopsaron* Jordan and Starks, and *Acanthaphritis* Günther, but can be separated by the high dorsal and anal fin counts, and the presence of a well developed, flattened hook-like process on the terminal end of the ceratohyal; this process projects into the branchial chamber, and has not been reported in the above genera. The high branchiostegal ray count of 7 is also diagnostic.

Branchiopsaron is most similar to *Spinapsaron* in possessing a flap on the subopercle, preorbital spines, and edentulous palatines, but differs in having a high ray count, no barbel on the premaxillary, a process on the ceratohyal, seven branchiostegal rays instead of six, and in lacking the high posterior rays of the soft dorsal fin. The posterior-dorsal margin of the subopercular flap is smooth in *Branchiopsaron* instead of serrated as in *Spinapsaron*. *Acanthaphritis*, the only other genus with what appears to be a developed subopercular flap (Günther, 1880, pl. XVIII, fig. A), has the cleft of the mouth oblique, unarmed opercles, a lower number of dorsal and anal rays, and six branchiostegal rays.

Derivation: *Branchiopsaron* comes from the Greek *branchia* meaning gills and *psaron* meaning little fish. Gender masculine.

Branchiopsaron ozawai, McKay, new species

(Figures 1, 1a, 1b)

Description: Based on the holotype; counts and proportions of 6 paratypes given within parentheses.

Dorsal V, 26 (V, 24-26), anal 31½ (29-31½), pectoral 21 (21), pelvic I, 5 (I, 5).

Lateral line scales unlike those of remainder of body in possessing a sculptured margin (see figure 1b) 40 in longitudinal series (39-43); 3 above, 3 below lateral line.

Head 31.3 (29.4-31.1), depth 12.3 (10.9-11.8), snout 4.2 (4.0-4.7), eye 9.9 (10.1-10.9), interorbital ridge 0.7 (0.6), head width 14.9, length of maxilla 14.8, snout tip (between preorbital spines) to first dorsal origin 31.2 (32.1-33.2), snout tip to second dorsal origin 15.7, snout tip to vent 36.3. Second dorsal fin base 51.8,

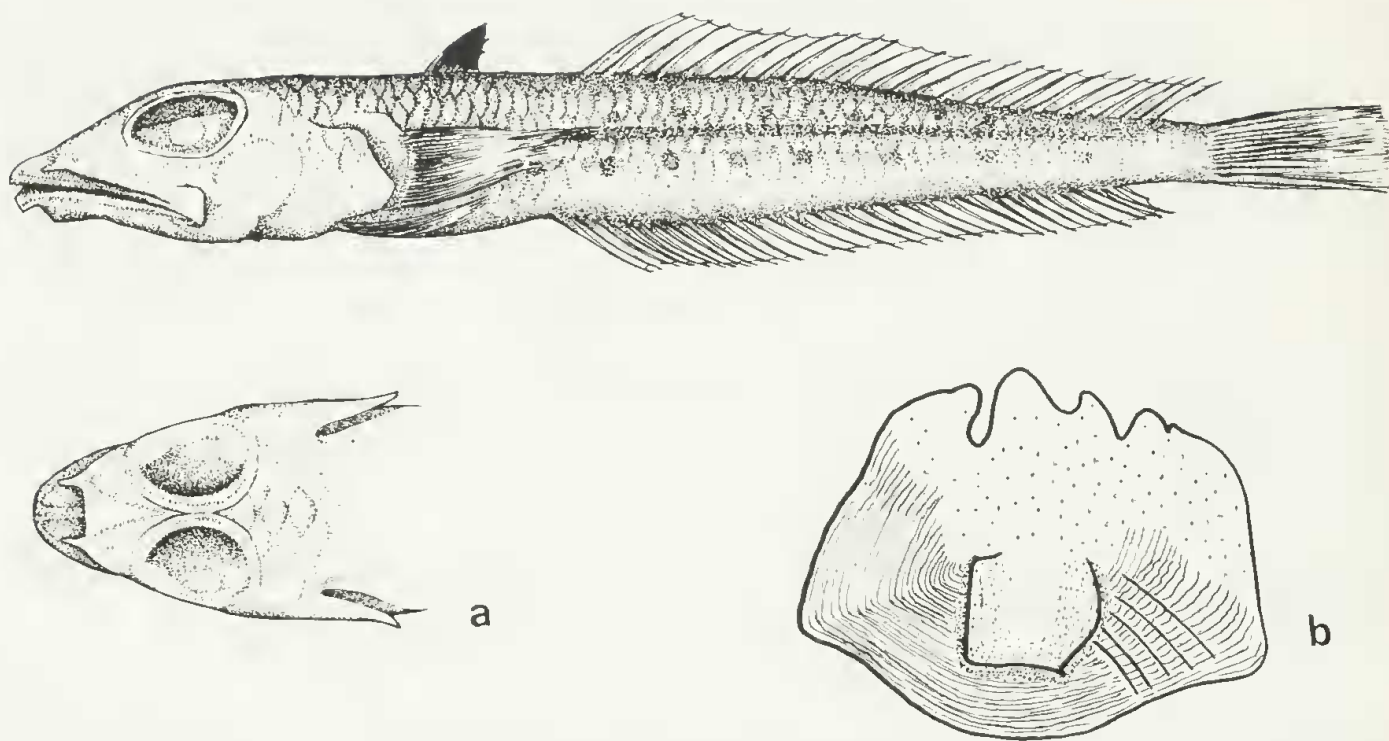


Figure 1.—*Branchiopsaron ozawai* sp. nov. lateral view; 1a. dorsal view of head; 1b. lateral line scale.

anal fin base 60.0, length of pectoral fin 20.3, length of pelvic fin 13.9, length of caudal fin 18.9, length of first dorsal spine 9.7, length of 3rd dorsal ray 9.5, length of 4th anal ray 7.2, length of preorbital spine 2.2. Depth of caudal peduncle 5.0; all expressed as percent of standard length taken from between the preorbital spines to the commencement of the caudal fin.

Head somewhat flattened above, widest at preopercle margin. Mouth wide with upper jaw slightly projecting beyond lower jaw. Nostrils situated close to anterior margin of eye. Space between preorbital spines concave; spines reaching anterior margin of premaxillae. Maxilla extending little beyond middle of orbits, its posterior end expanded and truncate, without flap. Teeth small and conical in 2-3 rows in both jaws. Gill rakers consisting of low patches of teeth situated along gill arch, one patch above angle, nine below. No row of cirri on inner preopercle edge. Hind margin of preopercle free and quite thin. Subopercle with flap of skin extending over basal half of pectoral fin. Pectoral fin extending to 4th dorsal ray. Pelvics commencing well before pectorals; their bases widely separated. Second dorsal fin originating above 4th anal ray. Caudal fin with eleven rays; seven rays branched.

Colour in formalin: Body with dorsal scale pockets possessing dark margins, sides with a diffuse longitudinal band (broken into dusky spots in one paratype), lower sides white. Head greyish, with grey opercles. First dorsal fin base pale, remainder of fin intensely black. Second dorsal, anal, pectoral, pelvic and caudal fins hyaline.

Colour in life: With about seven bright lemon-yellow spots, about one scale in diameter situated dorsally to the faint longitudinal grey band on sides.

Holotype: WAM P 19153, 105.8 mm in standard length, trawled by *Umitaka Maru* in 350 metres, Station UMPT 6905, 17°17'0"S, 119°57'0"E, December 20, 1969.

Paratypes: WAM P 19152, s.l. 108.5 mm; WAM P 19154, s.l. 86.5 mm; WAM P 19155, s.l. 93 mm; WAM P 19156, s.l. 70 mm; WAM P 19157, s.l. 65.5 mm; WAM P 19158, s.l. 57 mm; Station UMPT 6905, data as above.

Derivation: Named in honour of Captain K. Ozawa of the *Umitaka Maru*.

***Bembrops aethalea* McKay, new species**

(Figure 2)

Description: Described from the holotype; proportions and counts of 9 paratypes given within parentheses.

Dorsal fin VI, 14 (VI, 14-15); anal 16½ (16½); pectoral 27 (27); pelvic I, 5 (I, 5). Gill rakers 2/13.

Lateral line scales 54 (51-56). Transverse scales below rayed dorsal fin origin 6 above, 4½ below lateral line; 3 scales between lateral line and first dorsal fin.

Head 38.3 (36.0-39.4), depth 13.7 (12.7-15.3), snout 10.3 (9.6-11.1), eye 10.7 (9.0-9.8), inter-orbital 2.3 (1.1-2.2) snout to first dorsal origin 38.1 (36.9-38.2), depth of caudal peduncle 6.5, pectoral length 21.5, pelvic length 17.5, caudal fin length 19.8, second dorsal base 33.9, anal base 35.1, greatest width of head 19.5, length of maxilla 14.7, all expressed as percent of standard length.

Head flattened dorso-ventrally, widest at opercles. Mouth wide with lower jaw projecting beyond upper jaw. No preorbital spines. Maxilla extends little beyond anterior margin of eye; posterior end truncate with well developed flap of skin extending to middle of eye. Opercular and subopercular spines present and equidistant; opercular flap reaching sixth lateral-line scales. Small spine directed posteriorly above origin of opercle. Anterior four lateral-line scales with median raised keel. Tongue without teeth; tip slightly expanded. Teeth on vomer and palatines. Fine conical teeth on both jaws, those on upper jaw extending outside mouth. Gill rakers 2/13 (2/13-4/12) well developed with a row of small spines on inner surface. Gill membranes free from isthmus. First dorsal spine not filiform.

Colour in formalin: Body with about 13 smoky cross-bars on lower sides, cross-bars varying between one and 3 scales in width. Edge of dorsal scales dark forming a network pattern on the back. Upper and lower caudal rays dusky (a caudal spot present on the base of the upper caudal rays in some paratypes, the spots fading with an increase in body length). First dorsal membranes greyish; second dorsal fin membranes with dark basal streaks. Anal and pelvic fins hyaline. Pectoral fin faintly dusky with a vague basal streak. In life, bright lemon cross-bars present on the body.

Holotype: WAM P 19144, 177 mm standard length, 250 metres, 13°45'S, 123° 30' 5"E, Station UMPT 6909, December 23, 1969.

Paratypes: WAM P 19142, s.l. 179 mm; WAM P 19143, s.l. 180 mm; WAM P 19145, s.l. 183 mm; WAM P 19146, s.l. 138 mm; WAM P 19147, s.l. 143.7 mm; Station UMPT 6909. WAM P 19148, s.l. 179 mm; WAM P 19149, s.l. 175 mm; WAM P 19150, s.l. 170 mm; WAM P 19151, s.l. 121 mm; Station UMPT 6911, depth 242 metres, 13°47'0"S, 123°18'0"E, December 23, 1969.

Two other Indo-Pacific species of *Bembrops* lack a filamentous first dorsal spine, *B. caudimaculata* Steindachner and *B. adenensis* Norman. From *B. caudimaculata* this new species differs in coloration (membranes of the first dorsal not black; no vague spots along body), and the pectoral fin ray count is 27 instead of 23-24. The lateral line count is 51 to 56 instead of 42-48. The snout of *B. aethalea* is scaled not naked as in *B. caudimaculata*.

From *B. adenensis* the higher lateral line count (46-48 in *B. adenensis*), and the presence of smoky bars on the lower sides rather than 3 or 4 dark blotches (Norman 1939: 69-70) are diagnostic.

Derivation: *aethalea* from the Greek *aethalos* meaning smoke.

***Bembrops indica* McKay, new species**

Description: Described from the holotype; proportions and counts of 5 paratypes given within parentheses.

Dorsal fin VI, 15 (VI, 15); anal 17 (17), pectoral 28 (28), pelvic I, 5 (I, 5), Gill rakers 3/15.

Lateral line scales 66 (64-65). Transverse scales below rayed dorsal fin origin 7 to lateral line, 6 below.

Head 37.8 (36.4-39.3), depth 11.3, snout 11.4 (10.3-12.1), eye 8.2 (7.8-8.5), interorbital 1.1 (0.95-1.0), depth of caudal peduncle 5.0, pectoral length 20.2, pelvic length 15.2, caudal length 18.6, second dorsal base 34.0, anal base 34.7, greatest width of head 14.2, length of maxilla 10.5, all expressed as percent of standard length.

Head flattened dorso-ventrally, widest at opercles. Mouth wide, with lower jaw projecting beyond upper jaw. No preorbital spines. Maxilla extending little beyond anterior margin of eye; posterior margin truncate with flap of skin extending almost to middle of eye. Opercular and subopercular spines present; middle spine closer to upper opercular spine than to subopercular spine. Opercular flap reaching eighth lateral line scale. Small spine directed posteriorly above origin of opercle. Anterior five lateral line scales with median raised keel. Tongue without teeth; tip slightly expanded. Teeth on vomer and palatines. Fine conical teeth on both jaws, those on upper jaw extending outside mouth. Gill rakers 4/14, well developed with a row of small spines on inner surface. Gill membranes free from isthmus. First dorsal spine filiform, reaching second dorsal ray when spine depressed.

Colour in formalin: Body with about 12 diffuse dark spots along lateral line extending 2-3 scales above and below the line. A series of about 9 faint dark spots longitudinally above lateral line, the first 2 of this series on the anterior part of the lateral line. Dorsal midline with about 12 faint dusky spots, those along the second dorsal fin situated at the base of the 2nd, 4th, 6th, 8th, 11-12th and 14th rays. A

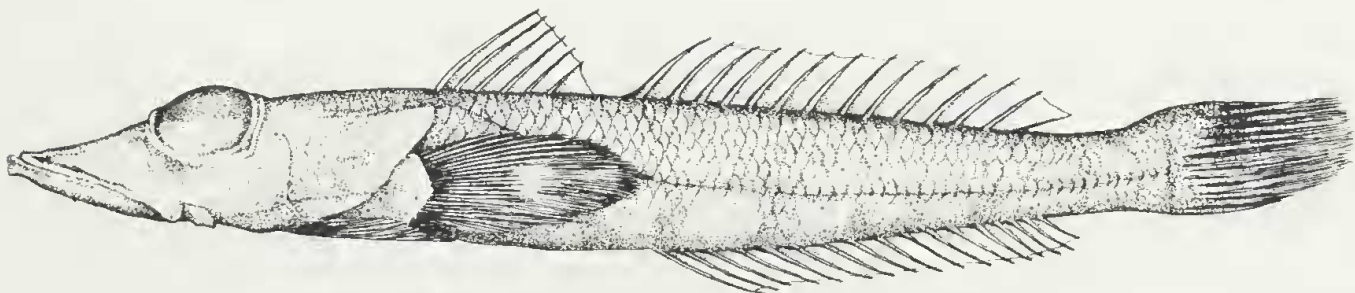


Figure 2.—*Bembrops aethalea* sp. nov. lateral view.

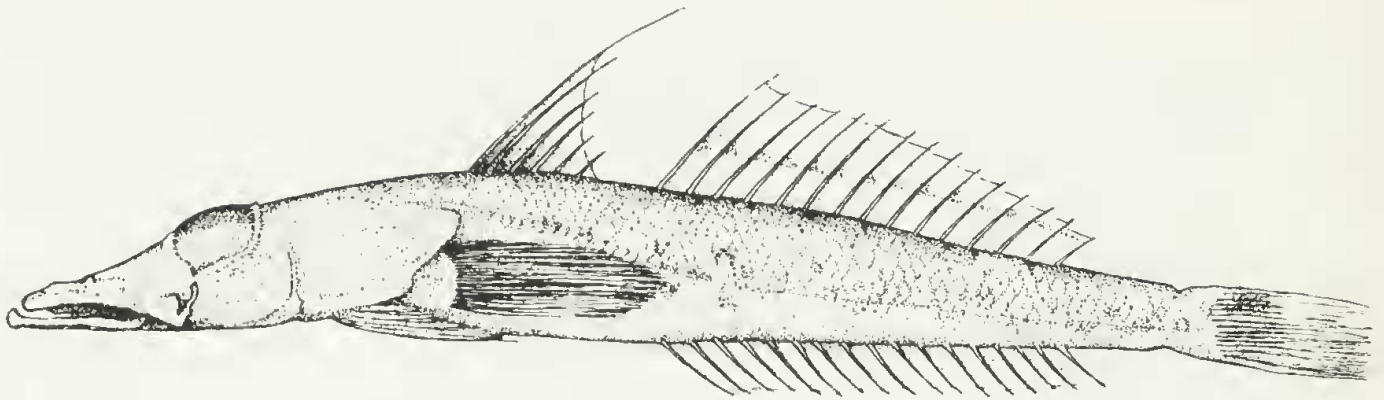


Figure 3.—*Bembrops indica* sp. nov. lateral view.

dark spot present at upper base of caudal fin. Fins pale to dusky, the membrane between the first three dorsal spines dark. A small dark spot at the base of the humeral spines. (One paratype P 19137 has well defined round spots in 2 to 3 series on sides.) Second dorsal with a submarginal black band; tip of caudal with a dark bar.

Holotype: WAM P 19138, 161.5 mm standard length, collected in 350 metres, 17°17'0"S, 119°57'0"E. Station UMPT 6905, December 20, 1969.

Paratypes: WAM P 19137, s.l. 158 mm; WAM P 19139, s.l. 79.6, Station UMPT 6905; WAM P 19140, s.l. 192 mm; WAM P 19141, s.l. 119 mm, Station UMPT 6913, 62 metres, 13°43'5"S, 128°38'6"E, December 26, 1969; WAM P 19162, s.l. 99 mm; WAM P 19163, s.l. 172 mm; Station UMPT 6910, 370 metres, 13°28'3"S, 123°09'7"E, December 23, 1969.

From *B. filifera* Gilbert this new species differs in having 17 instead of 18 anal rays, a short snout, shorter maxillary and different coloration (Gilbert, 1905 : 643-644, pl. 84). From all other species with an elongate first dorsal spine *B. indica* differs in having 64-66 lateral scales. The Atlantic *B. anatirostris* Ginsburg is morphologically similar but has the second dorsal spine produced and has only one series of lateral spots on the body (Ginsburg, 1955 : 635-637).

It is noteworthy that two specimens, from Station UMPT 6913, were taken in shallow depth (62 metres) whereas the other five all came from much greater depths, between 350 and 370 metres.

Derivation: *indica* in relation to the Indian Ocean.

***Chrionema chlorotaenia* McKay, new species**
(Figure 4)

Description: Described from the holotype; proportions and counts of 7 paratypes given within parentheses.

Dorsal fin VI, 16½ (VI, 16-17), anal 25 (25-26½), pectoral 24, pelvic I, 5. Gill rakers 5/15. Lateral line scales 79 (80-85). Transverse scales below origin of second dorsal fin 13 above lateral line, 6½ below.

Head 33.5 (33.2-35.9), depth 13.4, snout 8.8 (8.3-8.9), eye 8.1 (8.3-9.9), interorbital space 1.3 (0.84-1.4), length of maxilla 13.4 (12.8-14.4), snout tip to first dorsal origin 33.5 (33.6-34.9), greatest width of head 17.7, depth of caudal peduncle 5.2, length of pectoral 17.5, length of pelvic 15.6, length of caudal 16.9, length of second dorsal base 36.2, length of anal base 43.4, longest dorsal ray 11.9, longest anal ray 7.7, length of second dorsal spine 12.0, all expressed as percent of standard length.

Head slightly flattened dorso-ventrally, widest at opercles. Mouth wide with the lower jaw projecting beyond upper jaw anteriorly, but wide upper jaw extending beyond lower jaw laterally. No preorbital spines. Most of snout naked. Maxilla extending to front third of eye; posterior margin truncate, without a flap of skin. Opercular and subopercular spines present; middle spine closer to upper opercular spine than to subopercular spine. Opercular flap reaching eighth lateral line scale. Low spine present at commencement of lateral line. Anterior five lateral line scales with median raised keel. Tongue without teeth, tapered anteriorly with rounded tip. Teeth on vomer and palatines. Fine conical teeth on jaws, those of upper jaw extending outside mouth. Gill membranes free from isthmus. Angle of preopercle with three very small points.

Colour in alcohol: Body with about 11 vague cross-bars variable in width; sides of body with three large and 4 small alternating dusky areas. Head dusky with vague, slightly oblique bars on the opercles. Scales with darker edges forming a network pattern on cheeks and back.

Premaxillae dark, lower caudal rays dark, membrane between first and second dorsal spines slightly darker than remainder of fin, second dorsal fin hyaline, anal fin with dark margin, pectoral fins slightly dusky, pelvic fins with inner rays dark.

Colour in life: Lemon-yellow cross-bars present on the body; two large lemon spots on opercle flap, smaller lemon spots before eyes.

Holotype: WAM P 19136, 194 mm in standard length, 350 metres, 17° 17' 0" S, 119° 57' 0" E, Station UMPT 6905, December 20, 1969.

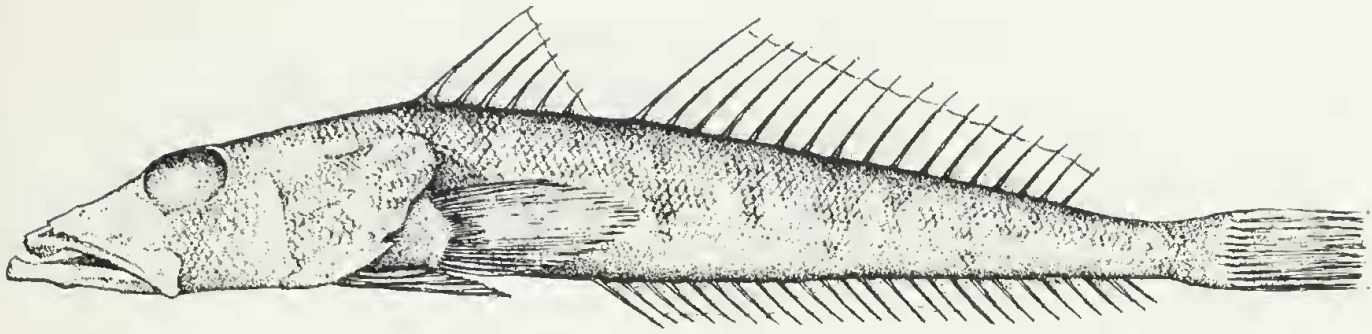


Figure 4.—*Chironema chlorotaenia* sp. nov. lateral view.

Paratypes: WAM P 19129, s.l. 187; WAM P 19130, s.l. 187 mm; WAM P 19131, s.l. 175 mm; WAM P 19132, s.l. 193 mm; WAM P 19133, s.l. 169 mm; WAM P 19134, s.l. 156 mm; WAM P 19135, s.l. 131 mm; Station UMPT 6905, December 20, 1969.

Very similar to *Chironema chryseres* Gilbert, the only other species in the genus, but differs in the higher lateral line count (79-85 instead of 72 or 76), the absence of a well developed preopercular spine, shorter snout, 25-26 anal rays (*C. chryseres* 24) and the shorter predorsal length (33.5-34.9 percent instead of 38 percent).

Derivation: *chlorotaenia* from the Greek *chloros* meaning greenish-yellow and *taenia* meaning banded.

Liopsaron McKay, new genus

Type species *Liopsaron insolitum* McKay, new species.

Body slender, without scales, head naked. Lateral line absent, no pores on body, a conspicuous nerve present below the skin immediately behind the pectoral fin; this nerve continuing along the middle of the sides, with branches originating near the upper pectoral fin origin and about midway along the pectoral fin length.

Eyes large, dorso-lateral, and separated by a very narrow interorbital space. Snout short, without preorbital spines. Upper jaw longer than lower; mouth almost horizontal, maxillary without a flap. Upper and lower jaws with two to three rows of small depressable teeth; vomer with numerous very small teeth; palatines without teeth. Tongue without teeth.

Opercle with a single strong spine projecting a little beyond the opercular flap; upper origin of opercle with a conspicuous, small, tube-like pore. Subopercle with a strong spine extending beyond the level of the opercular spine but not extending beyond the subopercular flap which is somewhat pointed and forms a horizontal floor to the posterior branchial chamber. Ceratohyal without a process. Gill membranes united to isthmus and attached posteriorly between the pectoral and pelvic fin origins. Pectoral fin with a fleshy base separate from the body anteriorly for a short distance and bound to the body posteriorly by almost transparent skin. Pelvic fins originating before pectorals, their bases widely separate. Anal fin commencing below the third to fourth dorsal ray. Branchiostegal rays six.

This new genus differs from all other genera within the family in lacking scales. Scale pockets are absent and no lateral line pores were found. The gill membranes are horizontally disposed between the subopercular spine and the isthmus to which they are joined. The closest relative is unknown at present.

Derivation: *Liopsaron* from the Greek *lios* meaning smooth and *psaron* meaning little fish. Gender masculine.

Liopsaron insolitum McKay, new species

(Figures 5, 5a)

Description: Based on the holotype; counts and proportions of 2 paratypes given within parentheses.

Dorsal III, 14 (III, 14), anal $13\frac{1}{2}$ (13-13 $\frac{1}{2}$), pectoral rays 26 (26), pelvic I, 5 (I, 5), branched caudal rays 4 + 4.

Head to tip of opercular spine 28 (28.7, 27.3), head to tip of subopercular spine 30.1 (31.0, 29.9), horizontal diameter of eye 11.8 (12.6, 11.3), length of snout 4.3 (4.6, 4.6), interorbital space 1.1 (1.1, 0.7), length of upper jaw 7.5 (7.5, 8.4), snout tip to first dorsal fin origin 30.1 (29.9, 31.8), snout tip to origin of second dorsal fin 43.0 (43.1, 43.6), snout tip to anal fin origin 50.5 (52.2, 50.7), snout tip to pectoral fin origin 30.1 (29.4, 30.1), snout tip to pelvic fin origin 25.8 (24.7, 23.2), length of second dorsal fin base 47.3 (48.2, 48.7), length of anal fin base 39.9 (40.2, 39.4), length of pectoral fin 22.6 (23.0, 21.6), length of pelvic fin 22.6 (24.1, 25.8), length of longest dorsal ray 17.2 (17.2, 29.5), length of longest anal ray 11.3 (10.7, 11.6), length of second dorsal spine 9.0 (8.5, 9.8), greatest width of head 17.2 (16.7, 16.9), greatest depth of body 14.5 (15.0, 14.8), depth of caudal peduncle 5.9 (5.8, 6.1), width of caudal peduncle 2.2 (2.3, 2.1), height of fleshy pectoral base 8.0 (8.3, 7.6), distance between tip of opercular spine and tip of subopercular spine 7.5 (8.0, 8.4); all expressed as percent of standard length taken from the tip of the snout to the commencement of the caudal fin.

Head slightly depressed; eyes large and separated by narrow interorbital space; mouth protrusible; snout slightly concave anteriorly but lacking spines; opercular and subopercular spines diverging posteriorly, both with sharp tips, opercular spine ending at about level of

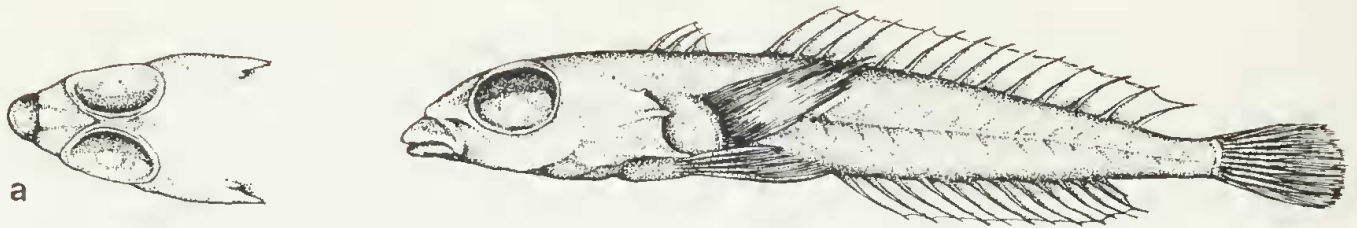


Figure 5.—*Liopsaron insolitum* sp. nov. lateral view; a. dorsal view of head.

upper pectoral origin, subopercular spine terminating almost at lower pectoral origin; pectoral fin rounded posteriorly, a free fleshy base quite conspicuous; pelvic fin with inner rays longest, spine much reduced and extending posteriorly to tip of subopercular spine; caudal fin almost truncate.

Colour in formalin: Body and head pale, almost completely faded; some faint dark blotches above opercle, before spinous dorsal fin, and one small spot on middle of pectoral base. Behind tip of pectoral fin a group of 3 somewhat variable almost vertical stripes becoming wider at base. A faint blotch present before caudal fin. All fins hyaline with occasional dorsal rays with a very fine, darker anterior margin. Eyes black above and silvery below pupil.

Colour in life: Rather pink with some lemon yellow spots on body, pectoral base yellowish and hind border of orbit orange. Much of the colour faded rapidly in formalin fixative; the colour in life is believed to be rather attractive.

Holotype: WAM P 19164 standard length 93 mm, total length 115 mm, trawled by *Umitaka Maru* in 350 metres, Station UMPT 6905, 17°17'0"S, 119°57'0"E, December 20, 1969.

Paratypes: WAM P 19165, s.l. 87 mm, t.l. 107 mm; WAM P 19166, s.l. 71 mm, t.l. 88 mm; Station UMPT 6905, data as above.

This new genus and species was taken in association with *Branchiopsaron ozawai*, *Bembrops indica* and *Chrionema chlorotaenia*; thus all the genera known from the north west of Western Australia were taken in a 30 minute, 1 mile trawl. The general construction of the gear employed is as follows: Lower-net, side-net

and upper-net have meshes of 60 mm, becoming meshes of 45 mm in the cod-end. The otter board is 2.54 x 0.9 m in size; the bridle wires from the board to the towing warp are 20 m long with a diameter of 16 mm; the wire connecting the boards to the net is 5 m long; the tickler chain is 25 m long and 8 mm in diameter.

The bottom temperature at Station UMPT 6905 was 11.4°C.

Derivation: *insolitum* from the Latin *insolitus* meaning uncommon.

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